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# Special Report to Oyster Industry: Growing Oysters in MSX Areas

Virginia Institute of Marine Science

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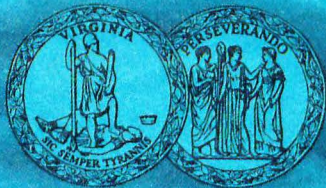
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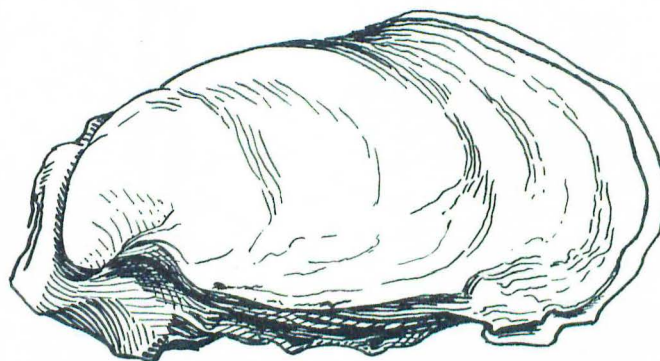
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## SPECIAL REPORT TO OYSTER INDUSTRY

### GROWING OYSTERS IN MSX AREAS

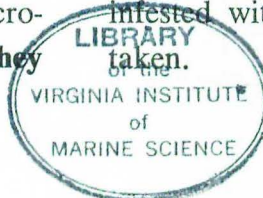


MSX is a microscopic parasite that kills oysters but is not harmful to humans. It is a protozoan, or one-celled animal which thrives in areas of high salinity water. Death of oysters occurs mostly in the warm season with minor losses occurring in winter. MSX is now in its tenth year in Virginia with no reduction of its activity.

Scientists at the Virginia Institute of Marine Science (VIMS) have discovered that oysters can acquire protective immunity to this microscopic killer **if they are exposed to it when they**

**are young.** As the oysters grow larger and older, their immunity remains fairly constant. Survival of laboratory bred stocks held in experimental trays and natural sets of oysters in MSX areas has been consistently favorable. Losses in both cases have been about 20 per cent or less per year, not including losses from predation and smothering.

These facts indicate that oysters can be grown profitably in those areas which are now infested with MSX if certain precautions are taken.





Seed oysters must come from areas where MSX is active during the spawning and setting period. At present, the Piankatank River and Mobjack Bay tributaries provide the best sources of resistant seed. Seed from the lower James River (indicated by heavily shaded area on map) would be suitable for planting in MSX infested areas, but buy-boats purchase oysters indiscriminately from tongers anywhere on the James River. Oystermen might use James seed if they could be certain it came from suitable bars, but the risk of buying susceptible seed from the up-river beds is too great for planters to take.

Virginia's oyster planting and growing grounds have been classified by VIMS scientists into four types of areas according to intensity of MSX activity. (See map.)

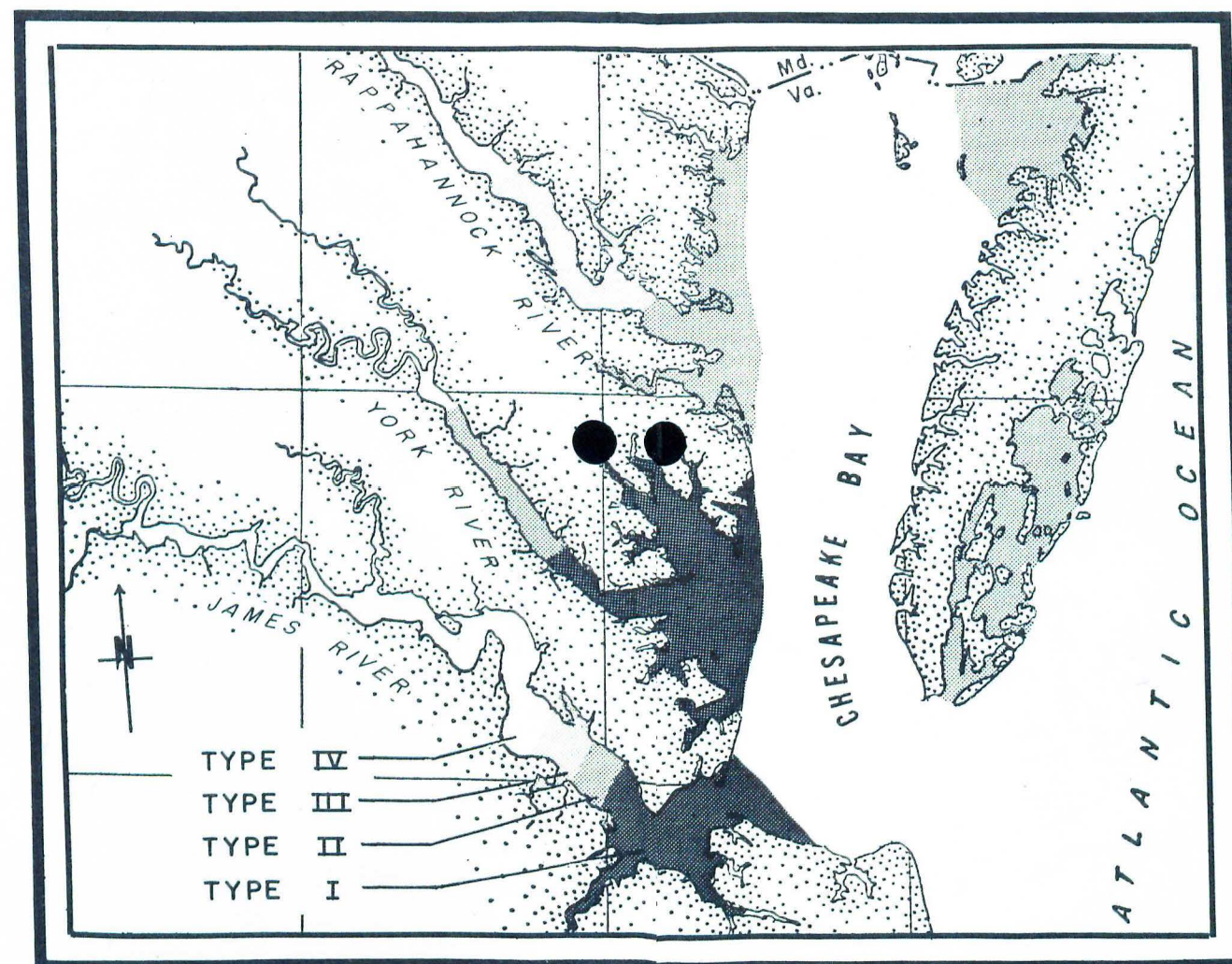
**Type I.** Areas with high-level MSX activity. Having prevalences of 30 per cent or higher, with late-summer deaths from mid-July to late August, and at least 20 to 50 per cent mortality by December of the first year. (Heavily shaded)

**Type II.** Areas with low-level MSX activity. Exhibiting the same timing but at lower levels of prevalence and mortality (less than 20 per cent for both usually). Activity fluctuates considerably from year to year. (Moderately shaded)

**Type III.** Areas with late-appearing infections (October and November) and little or no mortality. Typically, oysters in these areas have light infections which are carried

through winter but are discharged by oysters in spring without deaths. In dry years, these areas may become Type II, or even Type I, areas. (Lightly shaded)

**Type IV.** Areas free of MSX. These are always low-salinity areas usually free of predators and other diseases. (No shading)



#### MSX ON VIRGINIA OYSTER GROUNDS

Classification of Virginia oyster grounds by intensity of MSX activity. Four types of areas are designated ranging from high-level MSX activity to none (see discussion).

Boundaries of these areas may vary in location due to change of salinity and other factors; hence, average conditions are shown on the map. It is necessary to monitor each yearclass of seed oysters for MSX. VIMS routinely checks MSX activity in major seed areas.

Seed from Type I and II areas are most suitable for planting in MSX areas. Persons who grow seed on leased grounds should obtain seed from beds in Type I and II areas if the seed is to be used on beds subject to MSX.

Oysters must be grown rapidly and harvested early, if they are to be successfully cultured in MSX infested areas. This will involve critical decisions regarding time, place, and size of seed oysters transplanted. It is recommended that small seed oysters be planted and that this be done in the spring rather than in fall or winter because seed oysters lying on the bottom for several months before growth begins may be silted over and smothered. Rapid growth can be obtained by transplanting small seed early, but small seed are, of course, more susceptible to drill damage.

Oystermen should remember that smothering, predation, *Dermocystidium*, and other things also destroy beds of oysters; these factors must also be considered in planting and harvesting operations.

Moderate trial plantings of seed should be made before large plantings in areas where MSX has destroyed oysters. VIMS should be informed of such seed plantings (location of planting, size of seed, bushels per acre, date of planting, source of seed, and production history). This will make it possible to follow some plantings and determine the role of MSX as contrasted to other agents of mortality.





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